

Committee on Scientific Research and Development have been reviewed to ensure that they are consonant with the responsibilities of the new council. This reconciliation, with its time-consuming legal and jurisdictional complexities, was the major procedural problem faced by those concerned with the order, it is understood.

Few Changes Made

The executive order is expected to follow the outline of the committee report on all major points. One of the few deviations is said to be that giving a greater emphasis to international aspects of science planning. It is believed that the recommendation that the science adviser to the Secretary of State attend the council's meetings as an observer will be supplemented by other provisions that will promote greater recognition of the world-wide scope of American scientific efforts.

The Science Advisory Committee's report states that "the chairman of the council should be the Special Assistant to the President for Science and Technology." There is every reason to believe that this recommendation will be accepted and that the first council president will be James R. Killian.

Indirect Effects of Council Planning

One effect of the work of implementing and staffing the Federal Council for Science and Technology was to stimulate thinking among the various federal agencies doing scientific work. When officials of the Bureau of the Budget asked for recommendations of persons to sit on the council the agencies whose scientific activities are fragmented and dispersed were forced to examine their organizations and personnel. They had to ask themselves if they each had a man who was sufficiently on top of all the agency's scientific activity that he could speak for it before the council. When such men could not be found, it is reported, duties were assigned and staff work was begun that would fill the need. This is one of the things the Science Advisory Committee's report was designed to accomplish.

Opportunities of the Council

Great hopes are entertained by the committee for the new council. It is viewed as a means of eliminating the many *ad hoc* groups that have from time to time attempted to effect some coherent planning of the Government's vast scientific activities and replacing them with one group with direct access to the executive department and with sufficient authority to reconcile the many programs that are put forth by the various agencies. Clear alternatives could be presented to the President, and the "capital and manpower bind" that now adversely affects

many projected scientific programs could be resolved in the way that best serves the national interest.

Relationship to a Department of Science

Contrary to some speculation, the new council is not to be viewed as a prototype for an eventual department of science, according to informed sources. It is simply an attempt to solve the programming, funding, and resources problems that have multiplied to an unmanageable degree since the end of World War II. Science has come to be a major element in the national welfare and the national defense; the advisory committee believed that a Federal Council for Science and Technology offered the best means to accomplish this end. It was devised and offered to solve particular problems in the most efficient way, and not to set the stage for a department of science or to abort any efforts in that direction. In the view of one commentator, one of the great virtues of the council is that it is an innovation without the status and inertia of a full-fledged department. If it works, if it solves the specific problems to which it is addressed, so much to the good. If it does not, it can be abolished and replaced by whatever its experience shows to be the better mechanism—perhaps a department of science. But the view here is that the Federal Council for Science and Technology has the background planning, the cooperation of the federal agencies, and the auspicious beginning that give promise of effective planning and management of the Government's expanding scientific and technological activities.

Bethe Testifies on New Data, and Their Relationship to Geneva Talks

Speaking before the Joint Atomic Energy Committee's subgroup on disarmament, Hans Bethe, professor of physics at Cornell University and member of the President's Science Advisory Committee, gave his views last month on certain scientific findings that have bearing on the armament control talks now underway in Geneva, Switzerland. Bethe said that he would like to see the manned surface seismographic stations that are now being considered supported by many robot stations both on the surface and in deep wells around the earth. Bethe's testimony, which was well received by the subcommittee, covered many aspects of the related problems of nuclear weapon testing and detection.

The testimony was presented 2 February and was released later in the month after classified material had been deleted. Two passages from the transcripts of the hearings are published here.

Effect of Data on Geneva Conclusions

Senator Hubert Humphrey (D-Minn.), chairman of the subcommittee: "What Dr. Bethe is attempting to help us with today, is the effect of the new data upon the conclusions drawn by the Geneva Conference of Experts."

Bethe: "That is what I hope to say."

Humphrey: "As you know some people said that the new data necessitated a complete reevaluation of what had taken place at Geneva last summer. They have said that the conclusions last summer have been made invalid because of the new explosions, since the conclusions last summer at Geneva were based pretty much on the Rainier test, plus the theoretical knowledge we had, plus the knowledge about earthquakes and non-nuclear explosions."

Bethe: "Yes."

Humphrey: "But with these four nuclear explosions last October, new data were obtained, and some people have said that the new data literally washed out all that had been accepted as true before. What Dr. Bethe is saying is that the new data didn't affect the first zone [0 to 600 miles] or the second zone [1400 miles and further], but it did show up a few tracings in the shadow zone [600 to 1400 miles]. Is that right?"

Bethe: "That is correct, except that I said that the magnitude of the signal in the first and second zone was less than . . ."

Humphrey: "Than they had anticipated."

Bethe: "Than they had anticipated."

Humphrey: "In other words, the larger explosions theoretically should have yielded a larger magnitude in the first zone and the second zone."

Bethe: "That is correct."

Humphrey: "But they did not. In other words, the practical experience did not fully substantiate the theoretical conclusions."

Bethe: "That is correct."

Humphrey: "However, the practical experience did not destroy the theoretical evaluations."

Bethe: "That is also correct."

Humphrey: "It only turned out to be a little less."

Bethe: "That is correct."

Humphrey: "In other words, the assumptions were greater than the fact."

Bethe: "That is correct."

Result of October Tests

Bethe: "This is what I want to testify to, just this problem. The main result of the October tests in Nevada was not what I said before, but the main result was that the first motion of the earth as recorded by the seismograph is reduced to about 40 percent of what we previously expected. Now the first motion is important because this is the way we tell

explosions from earthquakes. In explosions, as I told in my previous testimony to you, the first motion is always outward. You push the earth away by the explosion, and you observe this outward motion at all seismic stations wherever you are. In an earthquake, on the other hand, you get an outward motion in some directions and an inward motion in other directions, and therefore, if you can observe the seismic signal at many stations, then you can tell an earthquake from an explosion by observing carefully the first motion. If you find that at all stations the first motion is positive, as we say, outward, upward, then you have an explosion. If you observe that it is positive at some stations and negative at other stations, then you have almost surely an earthquake.

"Now the Geneva Conference of Experts did not write this conclusion down in detail, but generally agreed in the discussions that in order to identify an earthquake one should observe two negative motions: one should have at two seismic stations a clear negative signal, downward signal, where the earth first moves down and then comes back up again. So it is the first motion which permits you to tell an explosion from an earthquake.

"Now why is that important? It is important because there are hundreds of earthquakes each year which give as big a signal as the explosions that we are concerned about, and therefore we must be able to distinguish the earthquakes from the explosions, and the best way we have found so far is this first motion. This is not the only way, but it is the best way, the most established way."

Education Act Hearings Stir Altercation on Security Clauses

In hearings before the Committee on Education and Labor of the House of Representatives a wide range of testimony has been presented recently on the progress of the National Defense Education Act of 1958. Officials from the U.S. Office of Education spoke on the implementation of the various titles of the act and discussed some of the problems that have arisen. One subject, the controversial loyalty oath and disclaimer clauses, caused an exchange that brought out the positions of a number of committee members.

Many members of the academic community are opposed to these clauses on the grounds that the first is unnecessary and that the second implies that the student is a "particularly suspect part of the population" who must pass a special test not required of other citizens. The exchange on the two security sections of the act, taken from a stenographic transcript, follows.

Frank Thompson (D-N.J.): "I think before we leave the loan fund I would like to ask Mr. Derthick whether he shares the feeling expressed by Secretary Flemming on about December 15, concerning the loyalty oath provision of this act."

Lawrence Derthick, U.S. Commissioner of Education: "I do."

Thompson: "In other words, you feel they are not necessary?"

Derthick: "I do."

Thompson: "I am very glad to hear that. Mr. Frelinghuysen (R-N.J.), has legislation which would eliminate it. I have it, and others do.

"I note with some interest I have communications from a great many institutions, the president of Yale University wrote a beautiful letter to the Secretary in this connection, which I think should be made a part of the record, Mr. Chairman, and I would like to do that.

"Princeton, Harvard, Yale, Bryn Mawr, three colleges in Maine, and numerous others, have expressed themselves as not being interested in participating in the loan features of the act if the loyalty oath remains."

Graham Barden (D-N.C.), chairman of the full committee: "Mr. Chairman?"

Cleveland Bailey (D-W.Va.), chairman of the subcommittee on general education and the presiding officer: "Mr. Barden."

Barden: "Mr. Chairman, I would not like for that exchange of remarks to go by as though it had the unanimous approval of this committee, because as a member of the committee I shall resist with everything that is within me the removal of that provision.

"Now, I have heard enough of this, every time we pass a law there is somebody who wants to come in and grab the money. They are interested in the money, then they want to raise a great howl over taking an oath of allegiance to America.

"I have been signing and swearing allegiance to America ever since I was a Boy Scout; did so when I entered the service in World War I, and have done so thousands of times since, including the oath that I did not belong to any organization that advocated or taught the overthrow of my government.

"When I became a member of Congress I took an oath. Every clerk or employee connected with this Congress, everyone who works for this government, takes that kind of oath, now up comes a bunch of college professors thinking it is so horrible and terrible to have to say they will not belong or do not belong to an organization that teaches the overthrow of this government.

"Here we are pouring out billions of dollars to teachers and professors to teach people. Are they going to instruct

kids that they do have a right to belong to organizations that teach the overthrow of this government?"

"I shall resist the removal of these obligations with everything there is in me. I do not think that is going to make any loyal citizen out of anybody, but the very fact that somebody raises the question and resists making a full declaration of loyalty raises some question in my mind. Now, I could not sit here and let that go."

Thompson: "I can understand the chairman's sentiments. I might point out that as well as is known, I doubt that a practicing communist would have any hesitation on swearing on any number of Bibles that he was not a communist."

Braden: "It will not hurt him to tell one more lie which he will gladly do."

Bailey: "Gentlemen, we will thresh this out in executive session when we are ready to vote on this bill."

John LaFore (R-Pa.): "For the record, I would like to associate myself with the chairman and his remarks."

Dominick Daniels (D-N.J.): "I do likewise."

Robert Griffin (R-Mich.): "Mr. Chairman, before we leave this section, because it deals with the administration of the acts, I would like to ask the commissioner, how are you administering this particular provision? It says that an affidavit shall be filed with the commissioner. Has a form been drawn up and is this thing in operation now?"

Derthick: "Let me say that our position does not object to the first part of this requirement. The oath of allegiance we don't object to that at all. Dr. Babbidge, would you report in response to Mr. Griffin's question?"

Homer Babbidge, an assistant to Derthick in the Office of Education: "Forms have been developed in connection with each program under which students received assistance. They will be required to fill out the form."

Griffin: "May I suggest that it be inserted in the record at this point."

Babbidge: "We will be very happy to do so."

Roy Wier (D-Minn.): "Mr. Chairman, I see a difference here of a point of view. I have no objection at all to the allegiance to the United States, but the communists, they are something else again. I think everybody here ought to take an allegiance, but the allegiance and the communist oath are two different things."

Barden: "As long as I am willing to do what I have done, and that is bare my chest to the bullets of enemy nations, I am willing to take any oath and preserve it and keep a screwball from getting into a position of spreading some kind of propaganda or something that will harm my government. I feel that very strongly.